

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

Amendments to the Claims

b¹
1. (currently amended) A stent ~~in particular a coronary stent~~, for expansion from a compressed first condition into an expanded second condition in which it holds a vessel in an expanded state in an implantation location, comprising:

a tubular body with a peripheral surface formed from a number of annular support portions that comprise bar elements connected in a longitudinal direction of the stent at an engagement point by way of connecting bars;

a¹
wherein the bar elements of at least a first annular support portion extend in a meander configuration in a peripheral direction of the stent and a number of bar element portions which adjoin at a turning point are arranged in a V-shape in the compressed first condition of the stent, characterised in that the bar element portions of the first annular support portion are adapted to extend curvedly in an identical arcuate manner a first direction in the longitudinal direction of the stent, and

wherein the bar element portions are curved uniformly over a length thereof.

2. (original) The stent of claim 1, wherein:

the bar element portions are of a continuously curved configuration.

3, 4. (cancelled)

5. (currently amended) The stent of claim 1 4, wherein:

the bar element portions are adapted to keep stresses that occur upon flexural deformation of the stent with respect to the structural axis thereof below a plastic deformation limit of the material upon being moved to the implantation location, by at least one of: being are curved in such a way and/or and having a width of the bar elements vary varies over a length thereof in such a way that the stresses which occur upon flexural deformation of the stent with respect to a longitudinal axis thereof upon being moved to the implantation location remain below a plastic deformation limit of a material comprising the stent.

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

6. (currently amended) The stent of claim 2 3, wherein:

the bar element portions are adapted to keep stresses that occur upon flexural deformation of the stent with respect to the structural axis thereof below a plastic deformation limit of the material upon being moved to the implantation location, by at least one of: being are curved in such a way and/or and having a width of the bar elements vary varies over a length thereof in such a way that the stresses which occur upon flexural deformation of the stent with respect to a longitudinal axis thereof upon being moved to the implantation location remain below a plastic deformation limit of a material comprising the stent.

7. (currently amended) The stent of claim 1, wherein:

the bar element portions are adapted to keep stresses that occur upon flexural deformation of the stent with respect to the structural axis thereof below a plastic deformation limit of the material upon being moved to the implantation location, by at least one of: being are curved in such a way and/or and having a width of the bar elements vary varies over a length thereof in such a way that the stresses which occur upon flexural deformation of the stent with respect to a longitudinal axis thereof upon being moved to the implantation location remain below a plastic deformation limit of a material comprising the stent.

8. (original) The stent of claim 7, further comprising:

a number of adjacent first annular support portions whose bar element portions are curved in the same direction.

9. (original) The stent of claim 6, further comprising:

a number of adjacent first annular support portions whose bar element portions are curved in the same direction.

10. (original) The stent of claim 5, further comprising:

a number of adjacent first annular support portions whose bar element portions are curved in the same direction.

11. (original) The stent of claim 7, further comprising:

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

a number of adjacent first annular support portions, wherein the direction of curvature of the bar element portions of the annular support portions changes in the longitudinal direction of the stent.

12. (original) The stent of claim 6, further comprising:

a number of adjacent first annular support portions, wherein the direction of curvature of the bar element portions of the annular support portions changes in the longitudinal direction of the stent.

13. (original) The stent of claim 5, further comprising:

a number of adjacent first annular support portions, wherein the direction of curvature of the bar element portions of the annular support portions changes in the longitudinal direction of the stent.

14. (original) The stent of claim 11, wherein:

the direction of curvature of the bar element portions changes from one annular support portion to another or the annular support portions have bar element portions in pairs with the same direction of curvature.

15. (original) The stent of claim 12, wherein:

the direction of curvature of the bar element portions changes from one annular support portion to another or the annular support portions have bar element portions in pairs with the same direction of curvature.

16. (original) The stent of claim 13, wherein:

the direction of curvature of the bar element portions changes from one annular support portion to another or the annular support portions have bar element portions in pairs with the same direction of curvature.

17. (original) The stent of claim 16, wherein:

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

the connecting bars compensate for the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent.

18. (original) The stent of claim 15, wherein:

the connecting bars compensate for the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent.

19. (original) The stent of claim 14, wherein:

the connecting bars compensate for the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent.

20. (original) The stent of claim 10, wherein:

the connecting bars compensate for the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent.

21. (original) The stent of claim 9, wherein:

the connecting bars compensate for the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent.

22. (original) The stent of claim 8, wherein:

the connecting bars compensate for the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent.

23. (original) The stent of claim 1, wherein:

the connecting bars compensate for the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent.

24. (original) The stent of claim 23, wherein:

the engagement points and the length of the connecting bars are so selected that the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent is substantially compensated.

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

25. (original) The stent of claim 22, wherein:

the engagement points and the length of the connecting bars are so selected that the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent is substantially compensated.

26. (original) The stent of claim 21, wherein:

the engagement points and the length of the connecting bars are so selected that the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent is substantially compensated.

27. (original) The stent of claim 20, wherein:

the engagement points and the length of the connecting bars are so selected that the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent is substantially compensated.

28. (original) The stent of claim 19, wherein:

the engagement points and the length of the connecting bars are so selected that the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent is substantially compensated.

29. (original) The stent of claim 18, wherein:

the engagement points and the length of the connecting bars are so selected that the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent is substantially compensated.

30. (original) The stent of claim 17, wherein:

the engagement points and the length of the connecting bars are so selected that the reduction in length of the bar elements in the longitudinal direction of the stent upon expansion of the stent is substantially compensated.

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

31. (currently amended) The stent of claim 30, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

in the compressed first condition of the stent, the connecting bars, which are rectilinear,
and extend between two mutually facing turning points of two adjoining bar elements that are
displaced relative to each other in the first condition of the stent in the peripheral direction of the
stent by between one and two periods of the bar element meander once and twice the period.

32. (currently amended) The stent of claim 29, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

in the compressed first condition of the stent, the connecting bars, which are rectilinear,
and extend between two mutually facing turning points of two adjoining bar elements that are
displaced relative to each other in the first condition of the stent in the peripheral direction of the
stent by between one and two periods of the bar element meander once and twice the period.

33. (currently amended) The stent of claim 28, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

in the compressed first condition of the stent, the connecting bars, which are rectilinear,
and extend between two mutually facing turning points of two adjoining bar elements that are
displaced relative to each other in the first condition of the stent in the peripheral direction of the
stent by between one and two periods of the bar element meander once and twice the period.

34. (currently amended) The stent of claim 27, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

in the compressed first condition of the stent, the connecting bars, which are rectilinear,
and extend between two mutually facing turning points of two adjoining bar elements that are

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

displaced relative to each other in the first condition of the stent in the peripheral direction of the stent by between one and two periods of the bar element meander once and twice the period.

35. (currently amended) The stent of claim 26, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

in the compressed first condition of the stent, the connecting bars, which are rectilinear, and extend between two mutually facing turning points of two adjoining bar elements that are displaced relative to each other in the first condition of the stent in the peripheral direction of the stent by between one and two periods of the bar element meander once and twice the period.

36. (currently amended) The stent of claim 25, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

in the compressed first condition of the stent, the connecting bars, which are rectilinear, and extend between two mutually facing turning points of two adjoining bar elements that are displaced relative to each other in the first condition of the stent in the peripheral direction of the stent by between one and two periods of the bar element meander once and twice the period.

37. (currently amended) The stent of claim 24, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

in the compressed first condition of the stent, the connecting bars, which are rectilinear, and extend between two mutually facing turning points of two adjoining bar elements that are displaced relative to each other in the first condition of the stent in the peripheral direction of the stent by between one and two periods of the bar element meander once and twice the period.

38. (currently amended) The stent of claim 1, wherein:

the bar elements meander in a periodic manner in the peripheral direction of the stent;
and

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

in the compressed first condition of the stent, the connecting bars, which are rectilinear, and extend between two mutually facing turning points of two adjoining bar elements that are displaced relative to each other ~~in the first condition of the stent in the peripheral direction of the stent~~ by between one and two periods of the bar element meander once and twice the period.

39. (original) The stent of claim 38, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
40. (original) The stent of claim 37, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
41. (original) The stent of claim 36, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
42. (original) The stent of claim 35, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
43. (original) The stent of claim 34, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
44. (original) The stent of claim 33, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
45. (original) The stent of claim 32, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
46. (original) The stent of claim 31, wherein:
the connecting bars are adapted to increase the flexibility of the stent.
47. (original) The stent of claim 1, wherein:

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

the connecting bars are adapted to increase the flexibility of the stent.

48. (original) The stent of claim 47, wherein:
the connecting bars are V-shaped.

49. (original) The stent of claim 46, wherein:
the connecting bars are V-shaped.

50. (original) The stent of claim 45, wherein:
the connecting bars are V-shaped.

51. (original) The stent of claim 44, wherein:
the connecting bars are V-shaped.

52. (original) The stent of claim 43, wherein:
the connecting bars are V-shaped.

53. (original) The stent of claim 42, wherein:
the connecting bars are V-shaped.

54. (original) The stent of claim 41, wherein:
the connecting bars are V-shaped.

55. (original) The stent of claim 40, wherein:
the connecting bars are V-shaped.

56. (original) The stent of claim 39, wherein:
the connecting bars are V-shaped.

57. (original) The stent of claim 56, wherein:

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

58. (original) The stent of claim 55, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

59. (original) The stent of claim 54, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

60. (original) The stent of claim 53, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

61. (original) The stent of claim 52, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

62. (original) The stent of claim 51, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

63. (original) The stent of claim 50, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

64. (original) The stent of claim 49, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

Ser. No. 09/974,777

Response to Office Action of 12 February 2003

Atty Docket 117163-28

65. (original) The stent of claim 48, wherein:

the connecting bars engage a central region of the bar element portions and are adapted to the curvature thereof.

66. (currently amended) A catheter for stent implantation having a stent, for expansion from a compressed first condition into an expanded second condition in which it holds a vessel in an expanded state in an implantation location, wherein the stent comprises:

a tubular body with a peripheral surface formed from a number of annular support portions that comprise bar elements connected in a longitudinal direction of the stent at an engagement point by way of connecting bars;

wherein the bar elements of at least a first annular support portion extend in a meander configuration in a peripheral direction of the stent and a number of bar element portions which join at ~~adjoin~~ a turning point are arranged in a V-shape in the first condition of the stent, characterised in that the bar element portions of the first annular support portion are adapted to extend curvedly in a first direction an identical arcuate manner in the longitudinal direction of the stent and the bar element portions are curved uniformly over a length thereof.